REMARKS

In the Office Action dated December 1, 2010, claims 1-4, 6-9, 11-31, 33-47, 49, 50, and 52 were examined with the result that all claims were rejected. The Examiner made the rejection final. In view of the following remarks, reconsideration of this application is requested.

I. Claim Rejections §102(b) and/or §103(a) Rejections over Dickinson

The Examiner rejects claims 1-4, 6-9, 11-31, 33-47, 49, 50, and 52 under 35 U.S.C. 102 (b) as anticipated by, or in the alternative under 35 U.S.C. 103 (a) as obvious over Dickinson, EP 0559382 A1 (Dickinson).

A. Patentability of Claims 1, 18, and 47

The present claims, including claim1, recite ranges of polymeric base and inorganic oxide that are not taught or suggested by Dickinson. The disclosure in Dickinson is extremely broad with the only disclosure of amounts being 10 to 50% polymeric base and 5 to 70% inorganic oxide.

Dickinson does not have any working examples and thus fails to provide any specific teaching on the relative proportion of polymer, silicate mineral and fluxing oxide (which forms a liquid phase at less than 1000°C) let alone the amount of fluxing oxide as a proportion of residue left after combustion. Further, Dickinson fails to teach the importance of controlling the proportion of fluxing oxide in order to obtain a material that converts to a coherent ceramic residue when all organic components are consumed in a fire.

Dickinson is specifically drawn to communication cables, and the problem Dickinson addresses is the increase in dielectric constant in the insulation when mineral fillers are used. Dielectric constant is not important at AC power frequencies. At column 3, line 27, Dickinson states that "Mineral fillers added to provide flame retardency...most certainly will compromise

the electric properties." At column 5, line 1 Dickinson states: "The cable of this invention overcomes the problem of competing properties (dielectric versus flame retardency) by causing the cable to include a barrier which is disposed between a fire source and the plastic insulation." In other words, Dickinson has a two part system of low dielectric insulation and separate flame retardant barrier. Hence, Dickinson teaches away from mineral fillers for use in cable insulation. As the Examiner will appreciate, a prima facie case of obviousness can be rebutted by showing that the prior art teaches away from the claimed invention. (*See* MPEP Section 2144.05 III, page 2100-152).

The declaration of Don Rodrigo clearly shows the critical nature of the fluxing oxide and its proportion by weight of non-combustible material. As the Examiner also will appreciate,

> Applicants can rebut a *prima facie* case of obviousness based on overlapping ranges by showing the criticality of the claimed range. "The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range." *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). See MPEP § 716.02 - § 716.02(g) for a discussion of criticality and unexpected results.

(*See id.* (emphasis added).

The present application recognizes and teaches the importance of the silicate mineral and the fluxing oxide and demonstrates the criticality of the proportions in the Examples. Page 17, line 16 of the PCT [Para 0062 of the US Publication] teaches the critical nature of the

proportions of the components to prevent molten conductive pathways which can of course produce failure of electric cables.

The present invention is concerned with providing a composition which in the heat of a fire turns to a coherent ceramic which has the strength to provide a barrier for insulation of the functional element of cables or other structures (such as door seals or window seals) against the fire. The ceramic formed is relatively strong and dimensionally stable. Dimensional stability is important to avoid the strains produced by shrinkage or uncontrolled expansion which may severely weaken the insulation or expose the material or opening which needs to be insulated.

The use of the controlled amount (1-15% by weight of residue) of fluxing oxide (as discussed in the US publication at [0027 – 0029]) enables the filler to be formed into a coherent ceramic by virtue of the adhesion provided by fluxing oxide but avoids fusion and serious loss of shape which occurs if too much fluxing oxide is present so as to provide a liquid vehicle causing loss of the ceramic barrier at high temperature. The criticality of the nature of the components of the present claim 1 is not recognized by Dickinson, let alone the proportion of those components. In particular, the fluxing oxide, whose proportion and nature is critical to achieving dimensional stability and strength, is not recognized.

The Dickinson invention requires multiple layers. The conductors must have a low dielectric insulation and the flame retardant is either an additional jacket (Fig 1) or a tape with an additional jacket (Figs 3, 4, 5), whereas the composition of the present invention may be extruded straight onto the conductors.

In Fig 3 of Dickinson, the tape 44 is encased in a flame retardant jacket 48 [column 7, line 42]. The tape forms a barrier to contain gases from the insulation [see column 7, line 47]. The tape has a low melting point frit (< 350°C) and a high melting point devitrifying (crystal forming) frit.

Fig 4 of Dickinson has an external layer around the jacket. Fig 5 of Dickinson is a co-extruded version with the jacket enclosing the layer.

Dickinson uses phosphate glass as the low melting point inorganic oxide with additives as set out at column 5, line 31. The present invention has the compositions listed at page 17, line 22 onwards.

Independent claims 28 and 47 are allowable over Dickinson for the same reasons discussed above pertaining to independent claim 1. Dependent claims 2-4, 6-9, 11-20, 27-31, 33-45, and 49-50 are allowable as they depend from claims 1, 28, and 47.

B. Patentability of Claims 21-23, 25-26, 46, and 52

Claims 21-23, 25-26, 46, and 52 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Dickinson in view of Romenesko *et al.*, US 6,433,049 B1 (Romenesko). For the same reasons laid out above regarding independent claims 1, 28, and 47, these claims are allowable. It would not have been obvious to one having skill in the art to modify Dickinson in light of Romenesko because Dickinson does not disclose the criticality of the nature of the components of the present claims, in particular the fluxing oxide, whose proportion and nature is critical to achieving dimensional stability and strength. Because Dickinson does not render obvious the underlying independent claims, additional reference to Romenesko also does not render the present disclosure unpatentable.

For all these reasons, the claims are patentable over Dickinson, either alone or further in view of Romenesko. Reconsideration and withdrawal of the rejections are respectfully requested.

II. Conclusion

An effort has been made to place this application in condition for allowance and such action is earnestly requested.

Respectfully submitted,

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